

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 10/025,699

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (Original): A sensor comprising:
  - a dielectric block;
  - a thin film formed on a face of the dielectric block and in contact with a specimen;
  - a semiconductor laser unit as a light source which emits a light beam;
  - a first optical system which injects the light beam into the dielectric block so that the light beam is incident on a boundary between the dielectric block and the thin film at a plurality of incident angles which are greater than a critical angle for total reflection; and
  - a light detecting unit which detects a state of attenuated total reflection by measuring an intensity of the light beam totally reflected from the boundary;

wherein said semiconductor laser unit is driven with a driving current on which a high frequency component is superimposed.
2. (Original): A sensor according to claim 1, wherein said semiconductor laser unit comprises a stabilization unit for stabilizing an oscillation wavelength.
3. (Original): A sensor according to claim 2, wherein said stabilization unit comprises,
  - a second optical system which feeds back to the semiconductor laser unit a portion of the

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light beam emitted from the semiconductor laser unit, and  
a wavelength selection unit which selects a wavelength of the portion of the light beam.

4. (Original): A sensor according to claim 3, wherein the frequency of the high-frequency component superimposed on said semiconductor laser is within the range of 200MHz-1000MHz.
5. (Original): A sensor comprising:
  - a dielectric block;
  - a metal film formed on a face of the dielectric block and in contact with a specimen;
  - a semiconductor laser unit as a light source which emits a light beam;
  - a first optical system which injects the light beam into the dielectric block so that the light beam is incident on a boundary between the dielectric block and the metal film at a plurality of incident angles which are greater than a critical angle for total reflection; and
  - a light detecting unit which detects a state of attenuated total reflection due to surface plasmon resonance by measuring an intensity of the light beam totally reflected from the boundary;wherein said semiconductor laser unit is driven with a driving current on which a high frequency component is superimposed.
6. (Original): A sensor according to claim 5, wherein said semiconductor laser unit comprises a stabilization unit for stabilizing an oscillation wavelength.

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7. (Original): A sensor according to claim 6, wherein said stabilization unit comprises,  
a second optical system which feeds back to the semiconductor laser unit a portion of the  
light beam emitted from the semiconductor laser unit, and  
a wavelength selection unit which selects a wavelength of the portion of the light beam.
8. (Original): A sensor according to claim 7, wherein the frequency of the high-frequency  
component superimposed on said semiconductor laser is within the range of 200MHz-1000MHz.
9. (Original): A sensor comprising:  
a dielectric block;  
a cladding layer formed on a face of the dielectric block;  
an optical waveguide layer formed on the cladding layer and in contact with a specimen;  
a semiconductor laser unit as a light source which emits a light beam;  
a first optical system which injects the light beam into the dielectric block so that the light  
beam is incident on a boundary between the dielectric block and the cladding layer at a plurality  
of incident angles which are greater than a critical angle for total reflection; and  
a light detecting unit which detects a state of attenuated total reflection due to excitation  
of a propagation mode in the optical waveguide layer, by measuring an intensity of the light  
beam totally reflected from the boundary;  
wherein said semiconductor laser unit is driven with a driving current on which a high  
frequency component is superimposed.

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10. (Original): A sensor according to claim 9, wherein said semiconductor laser unit comprises a stabilization unit for stabilizing an oscillation wavelength.
11. (Original): A sensor according to claim 10, wherein said stabilization unit comprises, a second optical system which feeds back to the semiconductor laser unit a portion of the light beam emitted from the semiconductor laser unit, and a wavelength selection unit which selects a wavelength of the portion of the light beam.
12. (Original): A sensor according to claim 11, wherein the frequency of the high-frequency component superimposed on said semiconductor laser is within the range of 200MHz-1000MHz.
13. (New): A sensor according to claim 3, wherein said stabilization unit comprises a resonator disposed from an end of the semiconductor laser unit to a reflecting member.
14. (New): A sensor according to claim 13, wherein said resonator is an external resonator.
15. (New): A sensor according to claim 13, wherein said semiconductor laser unit is disposed at a fixed distance from the reflecting member.